

FIGURE 5.2

"Minute Math" Student Tool

Prediction and Record Sheet

P = predicted score (yellow)
A = actual score (blue)

100																				
95																				
90																				
85																				
80																				
75																				
70																				
65																				
60																				
55																				
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45																				
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25																				
20																				
15																				
10																				
5																				
0 Date	P	A	P	A	P	A	P	A	P	A	P	A	P	A	P	A	P	A	P	A
Test score																				
Student prediction																				

FIGURE 5.3
Reflection Sheet for "Minute Math"

Name _____ Date _____

GOAL: What do you want to learn?

Right now I can do _____ facts in five minutes.

PLAN: My goal is to get ____ out of 100 facts correct on my next test. I need to improve in

ACTION: When will you begin? Starting _____ I will use these study strategies to improve (study flash cards, play multiplication games, study with parents, etc.):

RESULTS: Did you follow through with your plan? What happened? Did you see improvements?

Minute Math strategy supported student self-assessment by surrounding it with scaffolding. The strategy required prediction (of the next week's score), reflection (on current and desired performance), goal setting, and strategy planning.

The bar graph itself became an important visual. In fact, one of the teachers thought she might use the bar graph by itself the following year, without the reflection sheet, although we think that would be a mistake because it would eliminate some opportunities for student self-reflection. This strategy could be adapted to any repeated assessment—for example, with vocabulary words, weekly lab reports, or any other routine and ongoing assessment.

Self-Assessment of Effort

Students can reflect on their individual effort. Teachers should try to have students assess different aspects of their effort. If a teacher just asks students how much effort an assignment required, most students will respond in terms of how much time it took them to complete. Teachers can avoid this response by asking students separate questions: *How much time did you spend? How hard did you concentrate? How carefully did you work? How did you handle new ideas or aspects of the assignment that you weren't sure how to do at first? How much help did you need, and did you ask for it?* And so on. Then, students can reflect—individually, with the teacher, or in small groups—about anything they learned that they will use in their next big project or assignment. Study strategies are a big part of self-regulation. It's not enough to know what steps to take for improvement; students need to know what to do to actually improve.

How Will I Recognize Effective Student Self-Assessment When I See It?

Effective student self-assessment is present when students can tell you about their strengths and weaknesses. Effective student self-assessment is present when students see the value of reflection and begin to do it routinely, whether asked to or not. Look for the following things to be happening in a classroom where effective student self-assessment is occurring:

- Students are asked to evaluate their own work regularly.
- Students set their own goals and monitor their progress toward them.

- Students can describe their own strengths and weaknesses.
- The classroom environment makes it safe for students to ask for help.
- Mistakes are seen as opportunities for learning.

How Can I Model Effective Self-Assessment in Conversations with Teachers About Their Own Professional Learning?

One thing you can do to encourage effective teacher self-assessment is to make it a safe activity. If admitting a need for help results in a supervisor rating a teacher poorly, the teacher will, of course, not feel able to do that.

Beyond providing a safe environment, you can encourage effective self-assessment among teachers by

- Communicating clearly the goals for professional learning.
- Having teachers generate the criteria for assessing progress on these goals.
- Agreeing on the criteria.
- Encouraging frequent reflection and communication.
- Responding to teacher self-assessment with supportive feedback.
- Following each supervisory visit with a conversation in which you ask the teacher what she thinks are her strengths and weaknesses.

You can also use the following conversation starters to help teachers assess and monitor their own classroom practices as they relate to promoting student self-assessment.

- *One of your strengths as a teacher is your belief in your students. I can see that as I observe your teaching. Tell me a little more about why you treat your students so respectfully and what that means for you.*
- *You have been working on student involvement in active learning all year. Let's talk about ways we can extend that student involvement into student assessment of their own work. What do you think they would need to be able to handle that?*
- *The rubrics you have been using for this project are really sound. Let's talk about ways you can have students use the rubrics, too—before, during, and after their work on the project.*

- *One of life's little mysteries is the fact that when teachers give over control of learning to their students, they don't have less control themselves over learning but in fact preside over a classroom environment that is more conducive to learning. Let's explore ways you can experiment with that in your classroom.*

What If?

Some school cultures are more conducive to student self-assessment than others. Sometimes individual teachers or whole schools have established an authoritarian climate that views appraisal of a student's work as "the teacher's job." Teachers who encourage student self-assessment may at first be accused, by students or their parents, of falling down on the job or abdicating their responsibilities. *What if you run into a parent or student who expresses this attitude?*

The strategic talking points in the section above on common misconceptions about student self-assessment are a good place to start. Many students and parents have been socialized into a view of schooling that sees grades as currency that students earn as they do little bits of work; and from that view it follows that it is the teacher who should be in charge of assessment, meting out the rewards. The problem with this view is that it doesn't really reflect how students learn. Whether a student or parent (or teacher, for that matter) likes it or not, students learn from active engagement with material and from figuring out their position relative to the material. What is it, and what do they know about it already? Is it of interest? Is it important? How much effort will they have to expend, and is the learning worth it? What will they have to do to achieve at the level they're aiming for or willing to accept? Even in an authoritarian climate, active and successful learners are asking these questions internally.

Given that reality, it isn't a matter of whether teachers are going to "let" students self-assess. It's a matter of whether teachers are going to harness this important tool equitably, teaching all students how to intentionally monitor their own understanding, giving all students this lifelong skill. And it certainly isn't a matter of abdicating responsibility. Teachers are responsible for structuring all the opportunities to learn in their classroom, and that includes opportunities for student self-assessment. There is plenty of teacher direction involved in planning

the activities and tools—for example, constructing checklists and planning how students will use them—for student self-assessment. There is plenty of need for teachers’ professional skills, too, as evidenced by the fact that we have seen as many poorly constructed, ineffective checklists as good ones!

So the school leader will have to lead some cultural change for this cause. It may involve explanations to parents who are looking for the same kind of schooling for their children as they experienced themselves. More powerfully, and more convincingly, it will involve showing students and parents how much more progress can be made when students actually look out for where they’re going.

Reflecting on Student Self-Assessment

We recommend starting your reflection on student self-assessment by considering this statement about attitude: Student self-assessment can only flourish if the ground is prepared. Once a learning culture and student involvement put down firm roots, then look for models and strategies teachers can share among themselves.

Use the following questions to guide your reflection on student self-assessment:

- Which teachers and students in your school believe that student self-assessment, with students self-aware about what they know and can do, is essential for real learning? Are there some who do not believe this? How could you show them a different possibility?
- What are some self-assessment activities that work well for students and teachers in various grades and subject areas in your school?
- How can you facilitate helping teachers share these ideas?

Summing It Up

Taken together, student goal setting and student self-assessment (covered in Chapters 4 and 5 in this book) are the most effective means to empower students. Student goal setting and student self-assessment are self-regulation activities that put students in control of their own learning. *Every* student, no matter what age

or developmental level, is an active learner. There is no such thing as “passive learning.” School leaders should believe that. Teachers should avoid the trap of trying to “help” by giving passive prescriptions to poor students and assuming active self-assessment is only for good students. Either students are the captain of their own ship of learning or there is no ship—that is, no learning. Teachers should treat all students as if this were true, because it is.



6

ENRICHING CLASSROOM DISCOURSE: Planning For and Asking Strategic Questions



More effort has to be spent in framing questions that are worth asking; that is, questions that are critical to the development of student understanding.

—Paul Black, Christine Harrison, Clare Lee, Bethan Marshall, & Dylan Wiliam,
Assessment for Learning: Putting It into Practice

Consider this: An average teacher asks 400 questions each day, roughly 70,000 questions each year, or 2 to 3 million questions over a teaching career. That means teachers spend a third of their time asking questions. Yet most of the questions teachers pose are answered in less than a second—the average time teachers wait before accepting an answer, calling on someone else, or answering the question themselves (Hastings, 2003).

Sadly, in most schools teachers still dominate classroom talk, relying on a traditional initiate-respond-evaluate (IRE) structure for classroom discourse. The IRE structure creates an imbalance of power in which teachers are the only ones who initiate classroom talk, share information, ask questions, and give directions. And to the detriment of all that occurs in that classroom, the IRE format sends the loud and clear message that

- All interactions are teacher initiated.
- Students speak *only* when invited by the teacher.

- The teacher decides what knowledge is valuable (Cazden, 2001).
- The teacher determines the pace the lesson should follow (Dillon, 1988).
- Student responses are either right or wrong.

Embedded in the IRE structure, teachers rapidly move from one question to the next, rarely providing the kind of formative feedback that helps students assess the gap between where they are and where they need to be to reach the lesson's learning target.

In this chapter we examine the role teacher questions play in the formative assessment process. We also explore how strategic teacher questioning can promote meaningful classroom conversations.

What Is Strategic Teacher Questioning?

Strategic teacher questions—questions that promote formative discourse—share three characteristics: (1) they are planned for, (2) they help students harness the workings of their own minds, and (3) they use appropriate “wait time” to increase student accountability and the complexity of student responses. These skillful questions focus students' attention on content and concepts that are critical to the learning targets, build logically and directly on students' prior knowledge, stimulate students' reasoning in ways that help them formulate personal responses, and result in learning that is richer, deeper, and more integrated (Dillon, 1988; Walsh & Sattes, 2005).

Led by a skillful teacher employing strategic questioning, formative classroom discourse—whether it lasts five minutes or spans an entire class period—can provide a “safe place” where students can self-assess. During formative discussions, strategic questions can both “assist and assess student learning” (Cazden, 2001, p. 92). These skillful questions foster active student engagement with important concepts, content, and reasoning processes in the context of specific subject matter. And when teachers use effective questioning, they continuously direct students' focus to important learning targets, helping them to assess where they are, where they want to be, and what they have to do to get there.

When teachers plan for and ask strategic questions, they begin to systematically examine their classroom questioning patterns. Many teachers are unaware of the questioning ruts that influence what happens in their classrooms. Formative

assessment not only can make those ruts visible but also can give teachers practical strategies for escaping them in order to raise the quality of the questions they ask and ensure equitable opportunities for all students to engage in meaningful discussion.

How Does Strategic Teacher Questioning Affect Student Learning and Achievement?

Teacher questioning is still the most common form of interaction between the student and the teacher in virtually every type of lesson across grade levels. Raising the quality of teacher questioning, therefore, can result in rapid and positive changes in the classroom that have a powerful effect on student learning and achievement (Clarke, 2005). Strategic teacher questions scaffold student learning and pull cognitive development. We can use the three characteristics of strategic teacher questioning (they are planned for, they help students harness the workings of their own minds, and they use appropriate wait time to increase student accountability and the complexity of student responses) to examine its effect on student learning.

Questions That Are Planned

Using strong evidence of student learning gathered day to day and minute by minute during the formative assessment process, classroom teachers take time to frame strategic questions that promote increasingly sophisticated conceptual understandings of the important content and reasoning processes tied to the lesson's learning targets. In their planning, teachers design questions that focus student attention on just-right next steps to take in thinking critically about the lesson's content. These questions tend to be "open" rather than "closed" and require responses that demonstrate the student's ability to think beyond factual recall or literal paraphrasing of content (see Figure 6.1).

Questions That Help Students Harness the Workings of Their Own Minds

Strategic teacher questioning, when done effectively, provides a medium for assessing learning that is immediate and accessible for both teachers and their students. When teachers frame and ask high-quality questions during

FIGURE 6.1
Closed Versus Open Questions

Closed Questions	Open Questions
<ul style="list-style-type: none"> • Imply there is only one predetermined “correct” answer. <p><i>What is the capital of Pennsylvania?</i></p>	<ul style="list-style-type: none"> • Invite a range of responses and make progressive demands on student thinking. <p><i>As you think about the state of Pennsylvania, why do you suppose its founders chose to locate the state capital in Harrisburg?</i></p>
<ul style="list-style-type: none"> • Almost always ask students to recall facts or to demonstrate simple comprehension. <p><i>What is a ratio?</i></p>	<ul style="list-style-type: none"> • Encourage students to think beyond the isolated facts to authentic and relevant uses of concepts. <p><i>Using the number of males and females in our class, how many ratios can you write?</i></p>
<ul style="list-style-type: none"> • Are designed to determine whether the student knows, understands, or can do a predetermined thing. <p><i>Can you name something that dissolves?</i></p>	<ul style="list-style-type: none"> • Are designed to increase and gauge the quality of what students know, understand, and can do as they make progress toward the learning target. <p><i>What rules about physical changes can we come up with to help us determine if something has melted or dissolved?</i></p>

formative discourse, they prompt students to inspect their existing knowledge and experience to create new understanding. And as teachers ask strategic questions, they model for their students how experienced learners seek clarity and, in doing so, scaffold their students in refining their abilities to self-assess and self-regulate.

Because many competencies take time to develop, students benefit from engaging in conversations that help them become aware of any gaps between their current competency levels and those required to reach the learning target. These benefits are not available to students who think and reason in isolation. Without exposure to formative discourse focused by strategic teacher questioning, many students mistakenly believe they have mastered certain concepts or reasoning

processes, when in reality there are gaps between where they are and where they need to be. Thinking with others during focused formative discussions creates the potential for students to become much more aware of their actual level of knowledge so they can intentionally work toward developing more sophisticated conceptual understandings of important ideas and relationships related to targeted content and reasoning processes.

Here are some examples of strategic questions that prompt students to self-assess, to set goals, and to self-regulate during formative discourse:

- *How did you arrive at your conclusion about ways to save electricity in our school? Talk about what you did so that we can all check our thinking.*
- *What steps did you take to create a set of interview questions to ask Mr. Gabriel about why he decided to become a school superintendent? Did anyone use a different set of steps to come up with their interview questions?*
- *How did you decide how much time to plan for editing your essay before you handed it in? How will your decision help you reach your goals for your essay?*
- *As you observed the thermometer that we inserted into the mitten, what did you learn about the ways we currently misuse the terms heat and temperature?*
- *When you were trying to predict the probability of finding more red candies in your bag of candy than other colors, how did your understanding of fractions help you to make your predictions?*
- *What strategies did you use in putting together your leaf book that helped you to keep organized? If you had it to do again, what would you do differently? What would you do in the same way, and why?*
- *The idea that you just shared about the role that slaves played in the economy of the South is important, but general. Can you be more specific?*

Questions That Use Appropriate Wait Time

Strategic teacher questions use appropriate wait time to increase student accountability and raise the complexity of student responses. It takes time to think. Yet in her research, Mary Budd Rowe (1974) discovered that “wait time”—the period of silence that follows teacher questions and students’ completed responses—rarely lasted more than one and a half seconds in typical classrooms, regardless of

grade level or content. Encouraging teachers to extend wait time beyond the one and a half seconds that is currently the norm in most classrooms is a strategy that appears too simple to have a significant effect on student learning and achievement. However, when teachers wait in silence for three or more seconds after they pose an open, higher-order question, and after a student responds, many positive things happen for students and teachers (Rowe, 1986; Stahl, 1994; Tobin, 1987).

When students receive three or more seconds of undisturbed wait time and get used to higher expectations for their responses,

- Their responses increase in length and correctness.
- They give fewer “I don’t know” and no-answer responses.
- Their self-efficacy increases.
- More students volunteer and give appropriate answers.
- More students challenge, expand upon, or add to the responses of other students.
- They offer an increased number of alternative responses.
- They increase the amount of student-to-student questioning.
- Their scores on academic achievement tests increase.

When teachers wait patiently in silence for three or more seconds after asking a question or hearing a student’s response,

- Their questioning strategies tend to be more flexible and varied.
- They decrease the number of low-level, closed questions they ask.
- They increase the quality and variety of open, higher-order questions.
- They ask additional questions that require more thinking and reasoning.
- They more accurately gauge where their students are in relation to learning targets.
- They ask questions that focus on the logical next step students need to take to deepen understanding.

We explore specific wait-time strategies later in this chapter. Teachers can use these and other wait-time strategies after posing a strategic question in order to help students learn to think and reason with their classmates. When students talk with their peers about ideas, learning targets, and classroom work, they are engaging in conversations that are formative and fundamental to learning.

By signaling to students that they should wait, think, and discuss before they volunteer a response, teachers can promote high amounts of talk that is productive and directly related to the content and the reasoning processes being studied. During these discussions, teachers guide their students to focus on the subject matter, to use accurate facts and sources of information that are appropriate to the conversation's focus, to weigh and consider what their classmates have to say (Fisher & Frey, 2007), to challenge misconceptions and inaccuracies, and to be prepared to supply evidence for any claims they will make in their responses. In other words, formative discussions led by strategic questioning and supported by appropriate wait time go a long way toward promoting “accountable talk”—formative conversations that hold students accountable to each other, accountable for getting their facts and evidence right, and accountable for using rigorous thinking (Michaels, O’Conner, Hall, & Resnick, 2002).

What Common Misconceptions Might Teachers Hold About Strategic Questioning?

Teachers commonly hold three misconceptions about strategic questioning.

Misconception #1: The primary purpose for questioning students is to evaluate what they have learned. Teachers routinely think of questioning as a vehicle for establishing what students already know. During the formative assessment process, strategic questions do more than audit learning; they engage students in the kinds of thinking that further their learning. Questions that merely audit learning do not inform the learning or engage students in thinking and goal setting.

Strategic talking points school leaders can use to address this misconception include the following:

- Strategic questions help students think in new ways and further their learning.
- Strategic questions help students self-assess, set goals, and self-regulate.

Misconception #2: Asking good questions is something teachers can do naturally, “on the fly.” Teachers assume that they routinely ask their students

high-quality questions, and they see little need to plan for and frame strategic questions as a consistent part of their instructional preparation. In reality, questioning skills are rarely developed without intention, and good questions are rarely asked on the fly without purposeful planning. And although any teacher can ask a great question once in a while, the power of strategic questioning in the formative assessment process comes from tightly linking questions to the learning targets and framing them in ways that help students become accountable for contributing to meaningful conversations about important content.

Strategic talking points school leaders can use to address this misconception include the following:

- Strategic questioning is a skill that takes planning and careful teacher observation to develop over time.
- Strategic questions are carefully planned to connect to the specific learning targets in ways that inform student learning.

Misconception #3: Quality, formative discussions are the rule of thumb rather than the exception to the rule in the classroom. Research reveals that teachers routinely overestimate the quality of their classroom discourse. High-quality discussions that advance student learning rarely occur in elementary and secondary classrooms, happening only 4 percent to 8 percent of the time (Dillon, 1984). In other words, more than 90 percent of the time, teachers are not leading the kinds of formative discussions that can raise student achievement and help students learn how to learn.

Strategic talking points school leaders can use to address this misconception include the following:

- High-quality discussions occur infrequently and should be a goal for all teachers.
- Teachers can promote student learning and achievement by focusing their energies on developing formative discussion strategies.

What Is the Motivation Connection?

When teachers frame questions in ways that advance learning, increase student participation, and help students gauge where they are in relation to the learning

target, they give students important opportunities to increase self-efficacy, regulate their own learning, and attribute their successes to the learning strategies they use and the amount of effort they put into the learning task. And because strategic questioning involves the use of appropriate wait time, it increases students' confidence in their ability to respond in meaningful ways (Rowe, 2003).

Teachers who plan for and ask strategic questions also increase their own ability to listen to what their students are saying rather than listening for the answers they expect. In this way, they can continue to improve their own questioning skills by varying the kinds of questions they ask, making sure all students feel accountable and confident enough to respond, and helping students learn from each other's thinking. It is difficult to consistently monitor students' learning while responding to students and keeping focused on the learning targets of the lesson. When teachers plan their questions rather than improvise them, they promote classroom discussions that are focused and formative and that actively engage their students in learning how to learn.

What Are Specific Strategies I Can Share with Teachers?

Three strategies that can help teachers to become aware of and improve their use of strategic questioning are (1) taking a questioning snapshot, (2) using appropriate wait time, and (3) following strategic questions with planned thinking extenders.

Taking a Questioning Snapshot

Ask teachers to choose a lesson that will involve whole-class questioning during a discussion. Ask them to pair with a partner teacher who can observe the lesson or to use a recording device to capture the lesson so they can self-assess. Provide them with the sheet titled "Taking a Questioning Snapshot" (Figure 6.2) to aid them in revealing their questioning patterns, assessing their effectiveness, and setting goals for improvement.

Using Strategies That Promote Wait Time

There are three straightforward strategies you can encourage teachers to use that introduce appropriate wait time to their classroom discussions. First, teachers can adopt the *Thinking Time, No Hands Up* strategy. To do this, the teacher

FIGURE 6.2

Taking a Questioning Snapshot

Questioning Pattern	Implications for Student Learning
<i>I talk most of the time without asking a question, or I ask few questions that actually require an answer.</i>	When you monopolize classroom talk with questions that do not require thoughtful responses (e.g., Is everyone with me?), you do not encourage students to think, share opinions, or self-assess.
<i>I ask too many questions, too quickly.</i>	When you employ a quick-fire delivery and bombard your students with questions, their responses tend to be knee-jerk reactions connected to shallow thinking. Asking low-level questions in quick succession does not compel students to think and reason.
<i>I ask too many simple yes/no or agree/disagree questions.</i>	Students have a 50-50 chance of answering correctly without paying attention, and they know it. Simple binary-choice questions do not hold learners accountable for producing, explaining, or justifying a thoughtful response.
<i>I only call on students who raise their hands or volunteer.</i>	Students learn quickly that when they do not raise their hands, the teacher does not hold them responsible for responding. An all-volunteer pattern ensures that many students will mentally disengage from the discussion.
<i>I call on a student by name before I ask my question.</i>	Once students realize they are not required to respond, they “check out.” Instead, ask a good strategic question, give all students a chance to think, and then use a random-selection method (e.g., picking names out of a hat) to increase student engagement and accountability.
<i>If a student cannot answer a question immediately, I call on another student to respond to the question.</i>	By not giving students adequate wait time, you deny them the opportunity to plan a thoughtful response, and you send a message that correct responses are quick and short. You make it clear that certain students are incapable of effective responses and encourage perceptions of low self-efficacy.

FIGURE 6.2
Taking a Questioning Snapshot (cont.)

Questioning Pattern	Implications for Student Learning
I do not discuss or analyze incorrect or partially correct responses.	When you fail to examine and discuss misconceptions, partial responses, or inaccurate responses, you lose opportunities to clarify important content, increase conceptual change, and provide high-quality formative feedback to help students self-assess.
I ask questions that are off target or that do not promote critical thinking about important concepts and ideas.	Asking questions that are unrelated to the learning target dilutes the discussion and confuses student thinking. Asking low-level, closed questions does little to advance analytical reasoning and the problem-solving skills necessary for academic success.
I am the only one asking questions.	If students are not asking questions—of you and of one another—they do not view learning as a process of getting one’s questions answered and are not using the discussion to speculate, reason, form a hypothesis, or seek clarity.

explains that she is going to ask a question that will require thinking time in order for students to come up with effective responses. She tells her students that during thinking time, a “no hands up” rule will be in effect. Then the teacher poses a meaty, higher-order question and asks her students to consider it carefully and write down what they are thinking. Then she uses a random-selection method to call on several students to share their prepared responses.

A second strategy is called *Pair Thinking, No Hands Up*. To use this strategy, the teacher assigns, or students choose, a thinking buddy or partner. The teacher asks a good, open, high-level question. The students think with their partners for three to five minutes, making notes about what they considered and the conclusions they reached. Then the teacher uses a random-selection method to call on several thinking pairs to share their jointly created responses.

Finally, teachers can use *Square Thinking, No Hands Up*. To start, the teacher assigns, or students choose, a thinking partner. The teacher asks a strategic question. Students think in pairs for three to five minutes and then join another pair to form a four-student thinking square. The thinking squares have three to five minutes to share their thoughts before the teacher randomly calls on several thinking squares to unpack their thinking and their conclusions for the class.

Following Strategic Questions with Planned Thinking Extenders

Strategic teacher questioning gets students thinking and engages them in formative discussions. The power of the questions is multiplied when teachers plan for and use strategies to extend thinking, deepen the conversation, and keep the discussion moving. More specifically, here are some of the various purposes thinking extenders may have and examples of what a teacher might say in each case:

- Inviting students to elaborate and offer more information
 - Ophelia, please tell us a little more about that.
 - Now that you have heard Rachael's ideas, what are you thinking?
 - Thinking about what Nicholas had to say, it might be useful if we knew more about ____.
- Reinforcing useful ideas, processes, or concepts contained in a response
 - I especially liked Tristan's ideas about ____ because ____.
 - I think Lily used a great strategy for ____ because ____.
- Encouraging further questioning and speculation
 - I wonder what might happen if ____.
 - What Mackenzie said makes me curious about ____.
- Modeling how to summarize
 - Ryan seems to be saying that ____.
 - Nicole, is it fair to say that you conclude that ____?
- Reflecting on the use of a certain strategy or process
 - This time we thought about _____. Maybe the next time we approach something like this we could _____.

Teachers can also use nonverbal cues—eye contact, nodding, raising their eyebrows, smiling—to invite students to enter the discussion, to encourage extended or alternative responses, or to challenge or to express surprise.

How Will I Recognize Strategic Teacher Questioning When I See It?

There are several ways to identify when teachers are using strategic questioning:

- Look for high levels of student engagement in class discussions.
- Listen for responses that are thoughtful and more fully developed.
- Notice teachers' use of specific strategies to ensure appropriate wait time.
- Expect to see teachers using follow-up strategies that extend thinking and keep discussions moving.
- Look for evidence of question design and framing in lesson plans.
- Listen for questions that are directly related to the lesson's learning target.
- Listen for questions that focus student attention on important concepts and processes.
- Listen for questions that encourage students to self-assess.
- Listen for questions that encourage students to comment or elaborate on another student's response.

How Can I Model Strategic Questioning in My Conversations with Teachers About Their Own Professional Learning?

Many school leaders fall into all too common questioning ruts when they lead faculty meetings and teacher professional development days. To make sure professional conversations have the intended outcomes, school leaders should take the time to plan for and frame strategic questions. Like classroom teachers, leaders often overestimate the quality of the discussions that actually occur in a meeting. Strategic questions can make the difference between discourse that is

superficial or off topic and lively conversations that are organized, focused, and outcome-driven.

To begin, plan and precisely state the targets for your meeting. You can use the information in Chapter 2 to guide you. Once you have your targets, plan questions that focus like a laser beam on engaging teachers in a critical discussion of the themes and concepts that are essential to your targets. Then frame the questions in clear professional language, keep them open, and draft a few follow-up strategies that you will use to keep the conversation moving in the right direction. Powerful questions not only frame strategic conversations with teachers; they also generate curiosity, surface underlying assumptions, and stimulate thought-provoking generative dialogue. The checklist and illustrative examples in Figure 6.3 can help you plan strategic questions for discussions with individual teachers, small groups, or your entire faculty.

You can make the conversation more equitable and help teachers to be more accountable for sustaining the discussion by coming up with a plan for eliciting responses from all teachers. Trust us, they will thank you. Who has not sat through seemingly endless faculty meetings that were dominated by the same few outspoken people or that rambled along without a clear purpose in sight? By planning for and using strategies that direct teachers to think and prepare their thoughts before the discussion, you are signaling to all who attend that you expect to hear from everyone and you expect responses to be thoughtful and on topic. You can communicate this message even more strongly if you use structured activities or random-selection strategies to invite responses. For example, you can use a pair-share strategy to gain structured input. To get started, put people in pairs, pose a question, have pairs prepare a response, and then ask each pair to share their thoughts, including what they considered as they grappled with the question. During the meeting, change the pairings often to keep the dynamics fresh. You can also use a random-selection process by simply putting names on slips of paper. Pose your question and give people time to prepare a thoughtful response. Then draw names at random to respond. With either strategy, if you run out of time to share responses, you can easily collect everyone's written thoughts. You will be surprised at the difference various questioning and random-selection strategies can make in leading and sustaining a meaningful discussion.

FIGURE 6.3

Leading Discussions with Focus Questions and Conversation Extenders

Action Step	Example/ Explanation	Focus Questions	Follow-Up Extenders
1. State the focus of the meeting as a learning target.	<ul style="list-style-type: none"> • All participants will be able to describe the benefits of formative assessment. 	<ul style="list-style-type: none"> • <i>What are some observations you've made this week regarding the use of formative assessment in your classroom?</i> 	<ul style="list-style-type: none"> • <i>Please share more about that . . .</i> • <i>Who can share a similar observation?</i> • <i>I imagine some of you can describe a different observation.</i>
2. Identify the two or three most essential concepts related to your target.	<ul style="list-style-type: none"> • Formative assessment happens when teachers enter into learning partnerships with their students. • Formative assessment must happen minute by minute and day to day in the classroom. 	<ul style="list-style-type: none"> • <i>As you think about the ways you are interacting with your students, what new working assumptions seem to be guiding those interactions?</i> • <i>What opportunities can you see for us to consistently and intentionally embed formative assessment into the daily heartbeat of our classrooms?</i> 	<ul style="list-style-type: none"> • <i>What's taking shape? What are you hearing underneath the variety of opinions being expressed?</i> • <i>What's the next level of thinking we need to do to help us become even more consistent and more effective?</i>
3. Plan one or two questions that will help teachers make important connections or deepen their insights.	<ul style="list-style-type: none"> • The purpose of strategic questioning is to help generate more questions and out-of-the-box thinking. 	<ul style="list-style-type: none"> • <i>What did we discuss today that surprised you?</i> • <i>What seems to be missing? What points didn't we make or discuss that we should address before we close our discussion?</i> 	<ul style="list-style-type: none"> • <i>Tell us more about why you find this so surprising in light of our goals surrounding formative assessment.</i> • <i>Why is this so crucial to our progress? What might we risk if we don't address it?</i>
4. Plan a question that will propel thinking forward and help teachers envision the conversation points for the next meeting.	<ul style="list-style-type: none"> • You can use strategic questioning to create new boxes from which to think outside! 	<ul style="list-style-type: none"> • <i>What unique contributions could each of us make to our collective and individual professional growth surrounding formative assessment?</i> 	<ul style="list-style-type: none"> • <i>Considering that idea, what support would you need? What support could you give?</i>

What If?

Strategic teacher questions have the power to advance learning, increase student engagement, and help learners assess where they are in relation to the learning target. *What if you have a teacher or group of teachers who are reluctant to break from traditional teaching structures to engage their students in more classroom discourse?* As you approach this issue, understand that teachers may have many reasons for their reluctance to move from traditional closed questions to questions that encourage all students to participate in an open discussion. Teachers often worry about the consequences of effective questions, which include the increased noise or buzz of engaged discussions; a perceived lack of control; the possibility of misinformation circulating during the discussion; taking time away from content coverage; and the problem of knowing which students are engaged, as active listening is not as overt an activity as answering a direct question. Analyzing the issue from many possible points of view can also help you address teacher concerns.

First, share the common misconceptions about strategic questioning with the teachers. Talk about the ways that effective questions generate student thinking and motivate students to construct high-quality responses. Agree with them that as the classroom becomes a place for lively discussion focused by planned and invigorating teacher questions, they may have to develop new strategies for covering content. Asking effective questions, like formative assessment, is not something you add to what you are already doing. It requires a fundamental reframing of what it means to teach and what we accept as evidence of learning. Assure them that you are not asking them to change everything they do, but rather to use effective teacher questions to transform the classroom into a more vital and valuable environment for them and their students.

You can use many of the strategies in this chapter to help teachers become more effective in asking strategic questions. You can also use feedback from walk-throughs and formal classroom observations to suggest the next steps each teacher can take to stretch a bit without completely leaving the comfort zone. One idea would be to suggest that the teacher plan one or two substantive, open-ended questions to stimulate discussion and then adjust the lesson plan so that the traditional lecture is followed by an open discussion of 10 or 15 minutes, in either group or whole-class format, based on the questions.

Whatever you suggest, the important point is to encourage and expect the teacher to incorporate strategic questioning. Know that teachers will be reluctant for a host of reasons. Listen carefully to those reasons and provide suggestions that are appropriate and supportive.

Reflecting on Strategic Teacher Questioning

The formative assessment process helps students develop inquiry skills that will enable them to continue learning throughout life. As you reflect on strategic teacher questioning as an essential element in the formative assessment process, consider the following questions:

- Do teachers' lesson plans include a list of strategic questions that are closely tied to the learning targets in order to engage students with crucial concepts in meaningful ways? Or do teachers commonly "shoot from the hip," asking random questions that may or may not lead students to a deeper understanding of the important concepts of the lesson?
- Do teachers consistently monitor and refine the quality of the questions they ask and the questioning strategies they employ in order to better help students learn how to learn? Or do they commonly view teacher questions as vehicles for determining which students can recite the correct responses and which students are paying attention?
- Do teachers employ a growing repertoire of techniques to provide appropriate wait time after posing a good, meaty, open-ended question? Or do teachers routinely use rapid-fire techniques with virtually no wait time, thereby promoting short responses from the same small group of students?
- Do you have a plan for sharing research on specific formative assessment strategies with teachers (for example, research on wait time and its effects on student achievement)? How can you be a more effective resource on research-based practices for the teachers you serve?

Summing It Up

The research is painfully clear: In spite of numerous inservice workshops and well-written how-to resources on asking effective questions, in too many cases, teacher questioning and class discussions lack quality and rigor. In most classrooms, teachers are still using low-level, rapid-fire recall questions that require a quick response and minimize student engagement with important content and modes of reasoning.

The formative assessment process gives school leaders a comprehensive and transformational way to help teachers incorporate strategic questions into the heartbeat of their classrooms. The process is comprehensive and transformational because it approaches strategic teacher questions as being integral to helping students learn where they are, where they are headed, and how to take the next best steps in that learning journey.

But in the formative assessment process, teachers are only half of the learning partnership. Helping teachers become strategic questioners takes us only halfway to our goal. Our students must see questioning as a productive way to contribute to classroom dialogue and, most important, as a mind tool for learning. Chapter 7 explores the role of student questioning and the effect it can have on learning and motivation. Together, Chapters 6 and 7 provide crucial insights for enriching classroom talk, developing productive habits of mind, and promoting optimal learning environments in which teachers and students share responsibility for the learning.



7

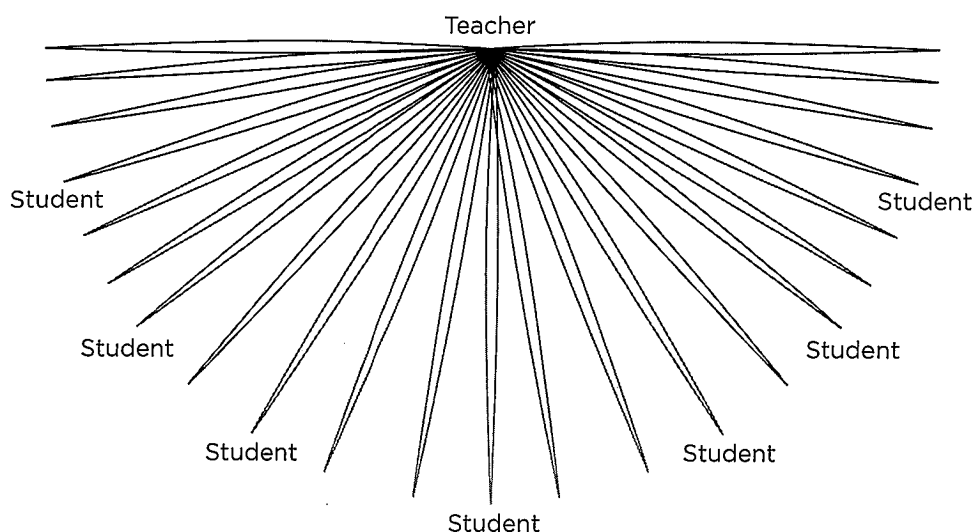
VALUING CRITICAL THINKING AND INQUIRY: Engaging Students in Asking Effective Questions



Picture a typical classroom on a typical day during a typical class discussion. Picture the teacher holding a ball of yarn in her hand. As the discussion unfolds, the teacher asks a question and tosses the ball of yarn to the responder, who tosses it back to the questioner. Then the next question is asked. Each time a question-response interaction occurs, the unraveling ball of yarn leaves a trail of the discussion pattern. In this typical classroom, the teacher functions as questioner-in-chief—the talk moves from and back to the teacher, creating a pattern similar to those created by the light rays of the sun (see Figure 7.1). This pattern of classroom talk is all too familiar—teacher question, student response, teacher evaluation, next teacher question. In fact, in many classrooms, the teacher takes up at least two-thirds of the available airtime. And in some classrooms, teachers are the only ones talking, with some teachers actually discouraging discussion, leaving students “talk-deprived” (Alvermann et al., 1996).

Now picture a classroom where the formative assessment process is alive and well. Students in this classroom see their questions as mind tools for the job of learning because their teacher encourages their questions as indicators of powerful thinking. Questions are valued in this classroom, and questions are asked *by* and *of* all learners. The pattern of talk in this classroom bears little resemblance to a single-source, ray-of-light pattern signaling that the teacher controls the learning. In fact, in this classroom there is no set talk pattern. But if we had to describe it,

FIGURE 7.1
Typical Pattern of Classroom Talk



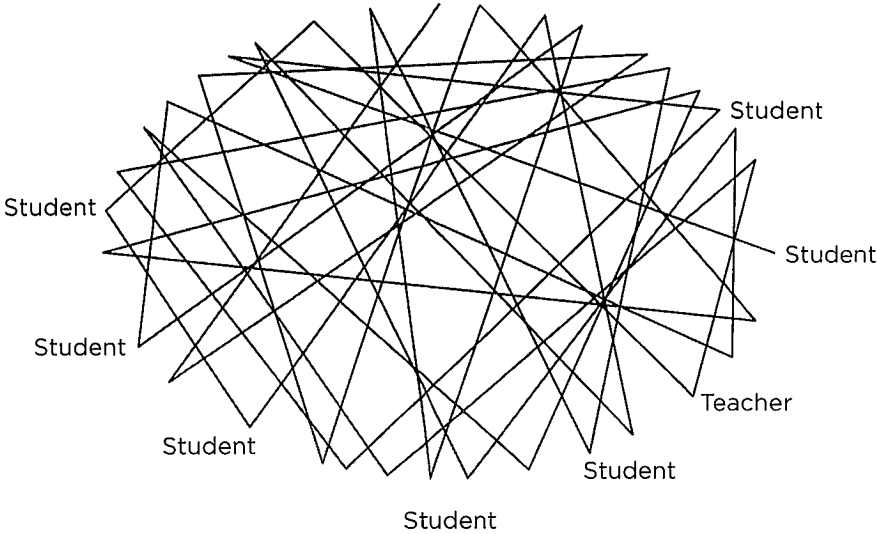
we would say it most closely resembles a free-form web (see Figure 7.2). And on any given day, the exact interactions the web depicts depend on the questions that the learners generate in pursuit of the learning target.

In classrooms where the formative assessment process is alive and well, the teacher is not the only skilled questioner. In fact, the teacher strives for democratic discourse that is vibrant and meaningful and that encourages students to think deeply and ask powerful questions.

What Does It Mean to Engage Students in Asking Effective Questions?

Students who ask effective questions recognize, value, and employ questioning as a productive mind tool to increase their understanding of important content and concepts. Learning to ask effective questions is central to the formative assessment process. Teachers cannot teach (and students cannot learn) everything there is to know. That is why engaging students in asking effective questions and teaching them strategies for doing so are critical, finally enabling us to give more than

FIGURE 7.2
Inquiry Discussion Web



casual lip service to the concept of developing lifelong learners. When students use self-questioning as they read and study independently, they deepen their understanding. And when learners are regularly engaged in collaborative inquiry discussions that they truly care about—discussions that are relevant and engaging and involve content central to the learning target—they are full of questions.

Walk into any kindergarten on any day and you will witness children asking thousands of questions—lines of inquiry that involve their teacher, their peers, and any visitor. Young children are full of questions and not shy about making sure they get their questions answered. Quite a different experience occurs if you observe a typical high school classroom and listen for the student questions. If you hear one, it is likely to be about the mechanics of an assignment or the steps in a task or simply “Will this be on the test?”

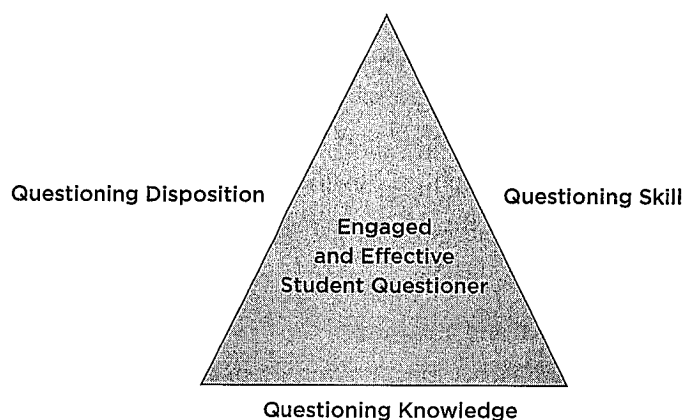
What happens to our students as they make their way from their first day of school to their high school graduation? Why do they lose their urgency for asking questions? Surely something that we do in schools contributes to this all too common phenomenon. What is it that dampens their curiosity and encourages

them *not* to question? What happens to students that “breaks them to saddle”—tames their natural instincts to explore, wonder, and investigate—to create passive receivers of knowledge? How can we reignite their curiosity and reintroduce them to the power of effective questions? What if we not only taught content but also valued and developed student learning based on inquiry? If we did, we would approach our students as engaged and empowered questioners, helping them develop and practice strategies for seeking clarity and using their curiosity about a topic to deepen their understanding.

Learning to use effective questions as powerful learning tools requires students to develop the three sides of the effective questioner: knowledge, skill, and will, or disposition (see Figure 7.3). Simply put, students must be ready, willing, and able to ask effective questions in order to succeed. Developing only one area will not do.

We can illustrate the importance of the bond among the three sides of the effective questioner by using a simple example that examines the task of flossing teeth. First, ask yourself: *Do I know what dental floss is, and can I describe how to use it?* If you answered yes, then you have sound flossing knowledge—you are *ready* to floss. Next, ask yourself: *Have I ever tried to floss my teeth or practiced*

FIGURE 7.3
Triad Model of an Engaged and Effective Student Questioner



flossing my teeth in a way that could be described as effective flossing? If you answered yes, then you have the skill to floss—you are *able* to floss your teeth. Now the final question: *Do I floss my teeth after each meal or snack?* If you are typical when it comes to flossing, you responded to the last question by admitting that you do not. In other words, you are *ready* to floss and you are certainly *able* to floss, but you are not *willing* to floss—you are not disposed to flossing regularly. You do not have the disposition of an effective flosser.

When we talk about engaging students in asking effective questions, we must also talk about simultaneously developing the three sides of the effective student questioner. Students learn through inquiry because they have questioning knowledge; they are capable of asking questions in pursuit of their own learning and understanding; and, most important, they are disposed to asking effective questions—of themselves, their teachers, and their peers—as part of the day-to-day, minute-by-minute work they do in the classroom.

How Does Engaging Students in Asking Effective Questions Affect Student Learning and Achievement?

We learn by asking questions. We learn better by asking better questions. We learn more by having opportunities to ask more questions (Morgan & Saxton, 1991). Teaching students to develop their own questioning skills and encouraging them to ask effective questions as a regular part of classroom talk help them become increasingly active in their own learning. Armed with self-assessment skills and using information from feedback that feeds forward, learners are more in tune with what and how much they know and understand about a topic. And because they are deeply engaged, students recognize how clearly they understand and what more they need to learn in order to apply their new understandings to unique and novel situations. As students develop the knowledge, skills, and dispositions of effective questioners, they also do the following (Clarke, 2005; Hale & City, 2006; Spiegel, 2005):

- Develop independence and autonomy.
- Construct deeper and richer meaning for important content and concepts.
- Take more responsibility for their own learning.
- Learn and practice discipline-specific ways of thinking.

- Discover how to persist during a challenge by seeking accuracy and clarity.
- Explain and express themselves more easily.
- Think deeply about what they are trying to achieve and master.
- Seek explanations and alternatives more frequently.
- Use self-assessment to monitor and evaluate their own understanding.

Finally, even though students learn by asking questions, without developing the ability to do that in effective and confident ways, they will continue to use what David Perkins (1995) calls “everyday thinking.” If we leave students to their own devices, they seldom become skilled thinkers. They have powerful minds but lack the means to harness their thinking in ways that enable them to reason deeply with greater effectiveness and rise above everyday thinking. Everyday thinking is like walking. It is something we can all do without conscious thought and with little need to increase our skill. But skilled thinking—the kind of thinking that students use when they generate effective questions—is like running the 100-yard dash. Skilled thinking requires technique, intentional effort, practice, self-regulation, and the use of self-assessment, goal setting, and increasingly sophisticated thinking strategies.

Skilled thinking and effective questioning are two sides of the same coin. In fact, there is a strong relationship between effective questioning, skilled thinking, and student achievement (Bransford, Brown, & Cocking, 2000; Hunkins, 1995). Skilled thinkers achieve more because they think about their own thinking and constantly seek to improve it. It takes this kind of skilled, metacognitive thinking for students to generate effective questions.

What Are Some Common Misconceptions That Teachers Might Hold About Teaching Students to Ask Powerful Questions?

The notable lack of student questioning as a vital and central feature of how learning happens in the classroom can be traced to common misconceptions teachers hold about student questioning.

Misconception #1: If students are encouraged to ask questions, they will take the conversation off topic, use up precious learning time, and

make it impossible to cover the content on schedule. Student questions hold contradictory meanings for teachers as conflicting forces come into play in a political landscape that holds teachers increasingly accountable to mounting curricular pressures. Although teachers say they value thoughtful questions about lesson content and concepts, they often view questions as interruptions to the normal flow of the classroom and a threat to their ability to control content coverage and lesson pacing.

Strategic talking points school leaders can use to address this misconception include the following:

- Even though student questions are a way to put students in the driver's seat, the teacher is still there to steer the conversation, apply the brakes, and accelerate the pace.
- The teacher is turning over some of the responsibility for learning, not relinquishing total control over the content and direction of classroom conversations.

Misconception #2: Students do not know enough about the content to ask good questions. Although teachers might enthusiastically endorse the idea that inquiry should grow and flourish in classrooms where student questions are encouraged and respected, research suggests that teacher beliefs about the nature of student questioning often prevent inquiry from actually taking root (e.g., Rop, 2002).

Strategic talking points school leaders can use to address this misconception include the following:

- The kinds of conversations that are fertile ground for student questions take place after students have spent some time with the topic and concepts.
- Students prepare their questions as a normal part of learning about the content, assessing their knowledge, receiving good feedback, and setting and getting their own learning goals.

Misconception #3: The same people will ask all the questions and monopolize the conversation. In classrooms where inquiry is neither promoted nor encouraged, it is common for the same few students to answer all the teacher's questions. Teachers might conclude, therefore, that these same students will ask all

the questions in a classroom where student questioning *is* encouraged. Actually, the reverse is true. Once all students are taught how to frame and ask effective questions, a culture of inquiry begins to develop where all students are active participants in quality conversations focused on the learning targets.

Strategic talking points school leaders can use to address this misconception include the following:

- Teaching students the skills of good questioning will actually increase student participation.
- Part of teaching students to ask effective questions involves helping them learn to listen respectfully and critically to each other in ways that maximize student participation.

Teacher misconceptions are inflamed by the tension teachers feel about handing over control of what happens in their classrooms. They are skeptical about putting students in the driver's seat because they see their students as lacking the knowledge, skill, and will to learn through effective questioning. Addressing these misconceptions head-on will help teachers come to grips with the crucial need to teach and encourage students to ask powerful questions as an important part of the formative assessment process.

What Is the Motivation Connection?

The level of motivation students bring to a topic will be transformed, for better or for worse, by what happens every day in the classroom. Even with topics that might appear to be naturally stimulating, students' excitement and curiosity can be dampened if teachers create learning situations that expect the students to passively learn the content in the way it is handed to them.

Students have two primary incentives to ask academic questions: to get help when they are stuck or confused, or to get more information when they are curious. Either way, asking a question takes high levels of self-efficacy—students must believe in their own questioning competence (Newman & Goldin, 1990).

When students engage in the cognitive work required to frame a question about important content and concepts, they are deeply engaged in meaning making. To ask an effective question, students must think critically, connect new

information to what they already know about a topic, and experience learning as understanding. Framing and asking a powerful question requires students to make connections between the content and their personal interests and experiences, thereby deepening relevance and increasing intrinsic motivation to learn (Perkins, 1992; Wells, 2001).

In fact, when students are actively involved in constructing and posing effective questions, they embody motivation to learn. They demonstrate a genuine desire to know more than they already know and to move beyond the information given to think about content in new and novel ways (Barell, 2003). As students begin to see themselves as effective questioners who can ask questions to deepen their understanding and enhance their own thinking, they become more aware of and responsible for their own knowledge and thoughts. In other words, engaging students in generating effective questions helps them to perceive themselves as autonomous and independent learners, producers of knowledge, and generators of important lines of inquiry. Developing as effective questioners gives students increased confidence that they can work through difficulties themselves. They learn to attribute their successes and their failures to factors that they can control and change.

What Are Specific Strategies I Can Share with Teachers?

As we noted earlier, there are three sides of the effective student questioner that the formative assessment process helps to develop. What follows are strategies that have particular strength in developing these three areas. Although we tried to organize the strategies based on their strongest influence on the effective questioner, many of the strategies we suggest help students develop more than one side of their questioning effectiveness and often help develop the three sides simultaneously.

Strategies for Developing Knowledge About Asking Questions

It is important for students to understand that learning is a process that involves getting questions answered. But asking effective questions isn't easy or natural for most students. Many students have had little practice with asking questions and are not sure about the mechanics of framing a question or where

effective questions come from. The two strategies we suggest here help students understand that questions arise naturally when they approach new content, think about concepts, try new processes or procedures, or learn more about concepts and ideas that are familiar to them.

The *Question Starters* strategy helps students build and expand their questioning repertoire by exposing them to and helping them practice using the kinds of beginning phrases that often start meaty, effective questions. To use this strategy, teachers distribute question starters on note cards, strips of paper, fun shapes, or simply a handout. Students can use the question starters to prepare questions about a topic before or during a class discussion. Figure 7.4 provides examples for several different categories of questions.

An updated SQ3R (*Scan-Question-Read-Relate-Reflect*) strategy, based on the original work of Francis P. Robinson (1941), provides both modeling and guided practice in framing strong questions that are related to the content students study and the books they read to gain information about that content. SQ3R walks students through the process of moving from a textbook passage to forming questions that, if answered, will help them understand the content and the crucial concepts at a much deeper level. Teachers can supply the SQ3R guide (Figure 7.5) for students to use as they read in preparation for a class discussion or a collaborative learning activity. Using the SQ3R strategy helps students become effective questioners and strong metacognitive learners who do the following:

- Notice when they lose focus.
- Stop and go back to clarify thinking.
- Reread through the lens of an effective question to enhance understanding.
- Identify and articulate what's confusing about a concept.
- Actively use self-questioning strategies to restore comprehension.

Strategies for Developing Effective Questioning Skills

The ability to frame a good question comes with practice. The more questions we frame, the better we become at framing questions. The same goes for becoming skillful at asking the questions that we have prepared. Most students have little skill as questioners because they are rarely expected to raise questions. The primary strategy, then, is for teachers to consistently engage students in collaborative

FIGURE 7.4
Question Starters by Category

Question Category	Question Starters
Observation and Recall	<ul style="list-style-type: none">• What did you notice about ____?• What do you remember about ____?• How did ____?• What did you find out about ____?
Relationships and Organizing	<ul style="list-style-type: none">• How are ____ and ____ similar/different?• What belongs together? Why do you think so?• What happened to cause ____?• What events led up to ____?• How does ____ apply to everyday life?
Summarizing and Drawing Conclusions	<ul style="list-style-type: none">• What conclusions can I draw about ____?• What is another way we could say/explain/express that?• What is the best ____, and why?
Predicting, Inferring, and Anticipating	<ul style="list-style-type: none">• What feeling do you think made ____ act that way?• Judging from the title/picture, what do you think is about to happen?• If we changed ____, what do you think would/would not happen? Why?

learning activities that require students to ask questions and scaffold them as they practice questioning in a safe and supportive environment. The following strategies will be useful to teachers as they help their students develop their skills as effective, collaborative questioners.

The *Questioning Quads* strategy allows learners to practice generating questions and asking questions as they work together to construct meaning. The questioning structure involves students in making predictions and discussing what they read to foster active engagement and critical thinking. And because the students are directing the discussion, the teacher is free to observe, scaffold, and reinforce the questioning strategies that the students use.

To begin, put learners into groups of four. Ask the students to read silently to an appropriate place in the text chosen beforehand by the teacher. When the students

FIGURE 7.5**Steps of the SQ3R Prediscussion Strategy**

Steps	What to Do
Scan	Before you read . . . <ul style="list-style-type: none"> • Scan the entire passage, chapter, or assigned reading in detail. • Consider the title, headings, pictures, graphs, and questions included at the end of the reading. What does it all add up to tell you? • What do you think you are supposed to learn from the reading?
Question	Before you read . . . <ul style="list-style-type: none"> • List three important points about the content of this passage that you discovered during your scan. • Write a question about each important point that you will try to answer as you read. • Jot down information that helps to answer your three questions as you read.
R1—Read	After you read . . . <ul style="list-style-type: none"> • Ask yourself, <i>What did I already know about this topic that was not in the reading?</i> • Write two questions that will help you learn more about what you already knew.
R2—Relate	As you reread . . . <ul style="list-style-type: none"> • Jot down information that helps to answer your questions about the important points and relates to what you already knew.
R3—Reflect	After rereading . . . <ul style="list-style-type: none"> • Ask yourself, <i>What don't I still understand? What don't I agree with, and why?</i> • Write five questions that you will bring to the class discussion to deepen your own learning and the learning of your classmates.

finish reading, they begin the questioning quad using question strips like the ones suggested in Figure 7.6. Student 1 is the *questioner*. He chooses a questioning strip at random and uses the phrase to frame a question that either asks about what the group read or can be used to predict what might, will, or can happen next. Student 2 is the *paraphraser*. She puts the question into her own words. Student 3 is the *responder*. This student answers the question that Student 1 asked and Student 2 rephrased. Finally, Student 4 gives feedback by describing what the group learned

FIGURE 7.6
Questioning Quad Strips

- | | |
|-------------------------------|--------------------------------------|
| • I wonder if . . . | • How did . . . |
| • I wonder when . . . | • What is your opinion . . . |
| • Why do you think . . . | • Why is the picture . . . |
| • I wonder who . . . | • Can you take a guess . . . |
| • I wonder how . . . | • What happened when . . . |
| • What would happen if . . . | • Who found . . . |
| • What if . . . | • Who tried to . . . |
| • Why did the author . . . | • When was . . . |
| • Do you understand why . . . | • Can you remember why . . . |
| • How were . . . | • When did you begin to think . . . |
| • How did . . . | • Why would it be necessary to . . . |
| • How many other ways . . . | • Why was it important that . . . |
| • When did you realize . . . | • How do you explain . . . |
| • What happened before . . . | • What was unique about . . . |
| • When will . . . | • What puzzled you about . . . |

by asking and responding to the question. Once the quad is complete, the students rotate roles and tackle a new passage.

The *My Contribution Roles and Goals* strategy sets a learning target for each student that involves asking good questions, responding politely to the questions that others ask, and listening respectfully when others are contributing to the discussion. Give each student a “contribution meter” for self-assessment before, during, and after a class or group discussion. Although the example we share in Figure 7.7 is appropriate for elementary and middle school students, the same points apply to high school discussions and can be shared as a simple checklist.

After the students complete the self-assessment of their discussion roles, encourage them to set goals for what they intend to do better, more of, or differently in the next discussion. Teachers can also use the completed forms to lead a class discussion on the use of effective questioning skills.

FIGURE 7.7
Contribution Meter

Discussion Skills	My Contribution Level		
	I am beginning	I am better at	I am very good at
• I listen respectfully to what others say.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• I do not interrupt—it is important to let others finish what they want to say.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• If I have a different point of view, I express it politely (<i>I agree because . . . , or I disagree because . . . , or I was thinking about that another way . . .</i>).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• If someone disagrees with me, I listen and try to think it through from their point of view.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• I make sure not to ask all the questions or try to answer all the questions that are asked. The more people who are part of the discussion, the more we will all learn.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• I use good eye contact—when someone asks a question, I look at them so they know I am interested in what they are saying and appreciate their contribution.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• I ask a “piggy-back” question when someone’s question or response makes me want to learn more. (<i>Can you talk more about . . . ?</i>)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• I answer questions with important facts and information that I learned by reading and studying or through an important experience.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• I give my opinion about issues when it is appropriate and back up my opinions with facts and examples.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• I prepare for the discussion by preparing my questions beforehand and then use the discussion to help me get my questions answered.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My Goals for Improving My Contribution			

Strategies for Developing the Disposition to Learn Through Effective Questioning

It may sound simple at first, but for students to be willing to ask their questions, they must feel welcome and safe. The most important strategy teachers can use to help students develop a disposition to ask questions is to create an open and supportive classroom environment where student questioning is valued and encouraged.

The Questioning Climate Checklist (Figure 7.8) is a useful tool for teachers. It will help them assess what they do to encourage *all* students to ask questions and uncover what they might be doing to deter the free exchange of ideas in their classroom. School leaders can use the same list of questions to focus teacher observations or to guide discussions about the importance of encouraging active student questioning as a viable and vital part of the learning process.

How Will I Recognize Effective Student Questioning When I See It?

As we mentioned previously, a good way to identify effective student questioning is to become familiar with the characteristics of classroom climates that foster student questioning. Using the Questioning Climate Checklist is a good way to do that.

But climate is only part of the equation. You can also look and listen for the following:

- Do student questions focus on the mechanics of an assignment or lesson, or do they go to the heart of important concepts or content?
- Do students seem interested and engaged?
- Do students ask their questions in ways that show confidence and competence?
- Do teachers have dedicated time (in lesson plans or on schedules) to focus on question development and guidance?
- Do you see signs of structure and scaffolded inquiry—formats that shape and encourage effective questioning?

Students and teachers cannot fake the knowledge, skill, or will to learn together by asking and responding to powerful questions. If the process seems awkward

FIGURE 7.8
Questioning Climate Checklist

Threat Level

- Do my students feel safe and free to ask the questions they want to ask?
- Do my students hear me say things that invite them to ask questions or that praise them for their contributions?

Practice Level

- Do I provide my students a chance to practice questioning and responding to questions in pairs or small groups?
- Do I give my students time to prepare their questions before a discussion?

Modeling Level

- Do I model good questioning skills, knowledge, and dispositions for my students?
- Do I respond to student questions with genuine interest and respect?

Resource Level

- Do I provide questioning resources that help my students use appropriate vocabulary or phrases to frame their questions?
- Do I provide my students with self-questioning structures that help them learn to use questioning as an integral part of self-assessment?

Feedback Level

- Do I regularly give my students informative feedback on their development as effective questioners?
- Do I provide specific suggestions and strategies to help my students take the just-right next step in their journey to become effective questioners?

Opportunity Level

- Do I monopolize the airtime by doing most of the talking or asking most of the questions?
- Do I have specific strategies for providing equal opportunities for all students to ask and respond to questions?

Wait-Time Level

- Do I provide time for my students to think before inviting a response?
- Do I implement specific strategies for using and encouraging appropriate wait time?

Honesty Level

- When I am unsure of an answer, do I admit to my students that I honestly do not know?
- Do I turn questions I cannot answer into teachable moments that help my students learn how to get their questions answered?

or unnatural, then it probably isn't happening with frequency, feedback, or encouragement.

How Can I Model the Importance of Effective Student Questioning in Conversations with Teachers About Their Own Professional Learning?

We spend far too much time admiring answers in our classrooms when there are many more reasons to admire questions. And, if truth be told, we are guilty of not placing enough value on student questions as an indicator of—a way to assess—significant learning. Why is the thoughtful student question so rare in our classrooms and in our schools?

As we noted earlier, young children come to school with an urgency for learning and a disposition to gain knowledge by getting their questions answered. What changes them? Sadly, the answer is that we educators do; in our schools and our classrooms we constantly send the message that answers are the coin of the realm. And to prove how much we prize the correct answer to each question, we add up the number of correct answers and write the total at the top of their exams to signify the degree of their learning.

Our actions speak volumes. We evaluate what we value. In fact, the process of evaluating literally stands for “placing value” on something. It stands to reason, then, that you can significantly influence what is valued in your school by sending a clear message that optimal learning environments place value on student questions. When talking with teachers, make sure to clearly communicate the value—significance, worth, or quality—that you see and expect in student questions. Ask teachers to share the best questions that students asked that day.

Use conversations with teachers to heighten the value they place on student questions by placing value on them yourself. Talk about the effective student questions you heard or the conversations you observed resulting from those questions. Applaud the planning and great teaching that foster effective student questioning—because it doesn't happen unless the climate is right.

And create a school climate where great questions are part of the culture. Give teachers time to think and frame questions before a meeting or a private conversation. Listen to them politely and let them ask all the questions they want

to ask. Treat their questions with respect, and then expect them to extend the same courtesy and encouragement to the students in their care.

Here are some conversation starters you can use in discussions with teachers about the importance of effective student questioning:

- *I know you have been working on integrating formative assessment into the very fabric of your classroom. Think with me for a minute about the kinds of questions your students are asking and about the evidence you are gathering about their ability and willingness to learn through effective questioning.*
- *Walk me through your most recent class discussion. As we think about the kinds of interactions that occurred—who asked the questions and who contributed to the discussion—let’s talk about the strategies you are using to help your students develop questioning dispositions and increase their confidence as strategic questioners.*
- *Using what we discussed, let’s talk about the opportunities you see for planning and adjusting your instruction in ways that will increase the probability that your students will grow and flourish as effective questioners.*
- *Now that you have specific strategies in mind, let’s think a minute about the challenges that might be preventing your students from fully realizing the power of being effective questioners and the kinds of supports we can create to help them meet those challenges head-on.*

What If?

Formative assessment is a process, and, as with any important change, making it part of the minute-by-minute heartbeat of the classroom will take effort over time. That means it is safe to bet that teachers will be at different places along a continuum of implementation, not just in terms of the degree that formative assessment becomes part of the fiber of the classroom but also in terms of the degree that all students are benefitting. *What if you observe a teacher who is not effectively involving students who are English language learners (ELLs) in a class discussion?*

Facilitating equitable class discussions in a multicultural classroom can be daunting for teachers, and contributing to these discussions can raise a myriad of

insecurities for linguistically and culturally diverse students. Because formative assessment focuses on helping students learn how to learn, the ideas expressed in this chapter to facilitate student questioning and discourse work very well to encourage more active participation for English learners.

Ask the teacher to think with you about the goals the teacher has for ELLs. Remind the teacher that tying the discussion tightly to the learning targets creates the kind of topically focused discussions that benefit English learners and expose them to important concepts and information. Suggest using the Questioning Quads strategy described in this chapter. This strategy allows students who are learning English to share and rehearse their questions about key concepts with a supportive group of peers to increase learning and to gain skill in asking effective questions. This will help students who are learning English develop motivation to contribute to a whole-class discussion.

Reflecting on Engaging Students in Asking Effective Questions

Memorizing facts and information is not the most important skill in today's world. Facts change; information is readily available. In the 21st century and beyond, learners need an understanding of how to get and make sense of information, concepts, and data. Through the process of inquiry, students learn to construct much of their understanding of the natural and human-designed worlds. Sadly, our students are rarely asked to discover compelling questions, nor do we teach them why they should ask such questions in the first place. As you reflect on engaging students in asking effective questions as an essential element in the formative assessment process, consider the following questions:

- Do teachers provide students with opportunities to learn how to ask great questions and the time to practice those skills during engaging classroom conversations about learning? Or are most classes run in a traditional teacher-directed format in which questions come only from the teacher and great discussions are the exception to the rule?
- Do teachers clearly communicate to their students that they value their questions, respect them as learning partners, and appreciate their efforts to contribute to the teaching-learning process? Or do teachers react.

to student questions in ways that say they view student questions as interruptions to the teacher's control over the pacing and direction of the lesson?

- Do teachers build a growing repertoire of strategies for teaching students how to ask effective questions? Do teachers coach students on how to respond and listen respectfully to the questions posed by their peers? Do teachers work consistently to create classroom climates that are open and supportive? Or do teachers expect students to be able to develop questioning knowledge, skills, and dispositions on their own?
- Do you regularly comment on the questioning practices that you observe in your walk-throughs in ways that encourage teachers to plan for and teach students how to become effective questioners?

Summing It Up

It is fitting that the final element of the formative assessment process reminds us to value student questions and the important role they play in assessment *for* learning. Active student questioning takes us full circle. We began with the three guiding questions of the formative assessment process: *Where am I? Where am I going? What strategy or strategies can help me get to where I need to go?* And, it is hoped, we now see those questions with new eyes. If teachers are the only ones who are asking effective questions, then our classrooms are lacking a key ingredient to increasing student achievement—developing students who are competent, confident, and self-regulated learners.

Just as formative assessment can forge powerful learning partnerships in the classroom, it can promote learning partnerships and a culture of collaborative inquiry throughout a school. In the final chapter, we offer practical suggestions and commonsense encouragement for unleashing the power of formative assessment schoolwide.



8

CREATING A CULTURE OF INTENTIONAL LEARNING: Taking Formative Assessment Schoolwide



We began our discussion of the formative assessment process by comparing it to a windmill. We likened the elements of the process to the blades of a windmill. This apt and vivid metaphor is worth revisiting here. When it comes to effectiveness, the blades of a windmill are the most significant factor. With only one blade, you have nothing. If blades are missing, uneven, or broken, a windmill loses both its effectiveness and its efficiency. A windmill needs all of its blades operating with constancy and dependability and whirring in harmony in order to successfully harness moving air to produce energy.

As school leaders consider the significant effects that the formative assessment process can have on their schools, they must remind themselves that like the blades of a windmill, all the elements must work in unison. Although an element such as effective feedback can certainly have a positive influence, feedback alone is not the formative assessment process. Formative assessment is both driven by and dependent upon the functional bond of the six elements. Without recognizing and understanding ^① learning targets and the ^② criteria for success, teachers and students cannot set goals, ^③ ask effective questions, ^④ profit from feedback, or have ^⑤ formative discussions. ^⑥ If students are not taught to self-assess or to set goals, then the best feedback in the world cannot propel them forward. And without knowing how to ask effective questions to advance their own learning goals, students cannot become lifelong learners. Like an effective windmill, the formative assessment

process derives its power from the fusion of its elements as they work together at the highest levels of quality and precision.

Taking formative assessment schoolwide means that a school leader must steward a process of complex change throughout the school, guiding and supporting the day-to-day and minute-by-minute work of the classroom. To be clear, formative assessment requires more than simply implementing a strategy or two, or implementing only some of the elements, or merely experimenting with all of the elements on a surface level.

Implementing the formative assessment process across a school involves changing the beliefs that teachers hold about how students learn and reframing the role teachers play in supporting that learning. And taking formative assessment schoolwide means replacing vague notions of the administrator as instructional leader with the powerful symbol of a school leader as the leading learner in an intentional learning community. If school leaders are serious about infusing the formative assessment process into the fabric of their schools, they must demonstrate the value they place on learning and consistently support classroom practices that help students learn how to harness the workings of their own minds to become competent and confident learners.

Why Is It Important to Take the Formative Assessment Process Schoolwide?

Chapters 1 through 7 discussed formative assessment in individual classrooms. Taking formative assessment schoolwide is important for both teachers and students. Teachers will feel less isolated and more supported in their formative assessment efforts if they are not going it alone. And students will experience consistency if formative assessment is common practice among the teachers in their school.

The consequences are particularly important for student motivation. If in one class students experience practices that help them see their learning targets clearly and in another class they feel like lessons are “what the teacher decided to do today,” they will have uneven opportunities to develop self-regulation skills. If in one class students experience practices that help them understand that it’s *their* decisions about what is important to do and about what and how to study that

will further their learning, and in another class they feel they are being told what to do, they will at best receive mixed messages and at worst become confused and less motivated.

Most of the studies on which Black and Wiliam's (1998) well-known conclusions about the benefits of formative assessment are based were research projects in which the concepts under study were ways of getting information to *students*. Definitions of schoolwide implementation of formative assessment that are only about getting information to *teachers* for them to use in adjusting instruction (as, for example, in some benchmark or interim assessment programs) stop short of being genuine formative assessment in the sense we have used the term in this book. More important, professional development or other efforts at schoolwide implementation of formative assessment that focus only on teacher use of information for adjusting instruction are not the sort of efforts that the research base for formative assessment says should be effective.

What Does the Research Say About Taking Formative Assessment Schoolwide?

Schoolwide changes in teacher practices require planning, coordination, and nurturing. Popham (2008) recommends teacher professional development and professional learning communities as two strategies for honing individual teachers' formative assessment skills and for schoolwide implementation of formative assessment.

A recent research project confirmed that sustained professional development will be needed for the kinds of changes in practice suggested for formative assessment. Shavelson and his colleagues (2008) theorize that if Black and Wiliam's (1998) findings were heading in the right direction, then embedding formal formative assessments in a nationally recognized science curriculum should lead to improved teaching and increased student learning. Assessment developers at Stanford University worked with curriculum developers at the University of Hawaii to develop formal formative assessments for a unit on buoyancy from the *Foundational Approaches in Science Teaching* (FAST) curriculum. Constructed-response tasks that called for students to interpret graphs and predict, observe, and explain aspects of floating and sinking were

designed and embedded in the FAST unit at “joints,” or conceptual hinge points, in the lessons’ sequence. They called these formative assessments “reflective lessons.”

These assessments differed a bit from the formative assessment practices we have been discussing in this book, in both an intentional and an unintentional way. The developers intended that the FAST “reflective lessons” would be more formal than many of the informal observational and conversational techniques we have discussed. They were, after all, predesigning them and embedding them in a prepared curriculum. (We quickly add that “informal” does not mean “unplanned.” We hope our chapters have shown that questions for students and in-class strategies need to be planned as a regular part of instruction.)

The developers, however, did not intend the second difference between what happened and what we have been describing as formative assessment in this book. The intention was that the reflective lessons would provide useful information for teachers *and students* about students’ understanding of floating and sinking. Teachers received professional development about how to do that. All six teachers in the formative assessment group (there was also a control group of teachers who used the curriculum materials without the formative assessments) in the study thought they were using the curriculum materials, including the formative reflective lessons, as they had been asked to do. And yet the embedded formative assessments did not have an effect, on average, on student motivation, achievement, or conceptual change (Yin et al., 2008).

The lessons of the teachers in the formative assessment group were videotaped, which led to a host of findings (Furtak et al., 2008). We discuss only a few of the findings here, those that speak to the difficulties of implementing formative assessment practices across classrooms, even with some training.

Teachers were asked to hold class discussions during the reflective lessons (the study’s formative assessments). Discussions, however, took only about 27 percent of reflective lesson time. Probably more important, discussions were not always held right after the predict-observe-explain or short-answer tasks, the formal formative assessments that had been designed for the study. This was a problem, because this is the point at which the student use of formative assessment information would be expected to happen. Students did not get a chance to process the information from their formative assessment performance.

Other student-centered parts of the formative assessment process became easily derailed, too. Teachers did use a variety of strategies for collecting student ideas and concepts. They did, then, display student ideas, as the curriculum guide asked them to do (for example, by using stickies or a whiteboard or an overhead projector). But only some of the teachers spent any time clustering the ideas, looking for patterns, or otherwise helping the students make sense of the ideas—and then for only a tiny portion of the time. Most of the time teachers did not ask follow-up or “why” questions to ask students to express their reasoning. Most of the time students did not back up their scientific claims with evidence from their classroom work. Finally, most (83 percent) of the time students were talking, they were addressing the teacher rather than other students (Furtak et al., 2008).

If these teachers found it difficult to understand and implement student-centered formative assessment practices, many others probably will, too. In fact, the notion that when it comes to significant learning it matters more what the student does than what the teacher does is a conceptual change that is difficult for most teachers to make at first. So when we recommend taking formative assessment schoolwide, we realize we are talking about a complex change in culture—a change that will require effort over time.

What Should School Leaders Keep in Mind to Increase the Likelihood of Taking Formative Assessment Schoolwide?

School leaders should carefully consider particular characteristics of the formative assessment process as they work daily to change the culture of their school. The bottom line is that formative assessment is a learning process. It is not a prepackaged program with teachers manuals, lesson plans, worksheets, and other materials. It is not something that teachers must *enact* but, rather, something they must *embrace*. Although embracing significant conceptual change about what it means to teach and what we should count as evidence of learning is difficult, it is much more lasting than asking teachers to adopt the next educational trend or buzzword. For too long teachers have taken a “this too shall pass” attitude toward fundamentally changing what they do in their classrooms. They have lived through many waves of reform and seen them fall out of fashion almost as quickly as they arrive.

The formative assessment process is not a new initiative or mandated reform in education. It goes to the heart of what we do in schools and in classrooms when we mount a serious effort to maximize student achievement and motivation to learn. Taking formative assessment schoolwide, therefore, is both essential and challenging. To meet the challenge head-on, it helps to keep the following points in mind.

First, each school is unique. The way change rolls out in one school is not the way it will roll out in another school. Know that going in. Your school, your teachers, your climate, your history—all of these will both determine and inform what it will take to change the culture of your school from teacher-led instruction to a partnership of intentional inquiry. Repurpose the guiding questions of the formative assessment process: *Where is my school now? Where do we want to go? What strategy or strategies will help us get to where we need to go?* Changing what you value in your school depends on where you are now and not on where other schools are. Complex change means capitalizing on your distinctive strengths and addressing your particular areas of need.

A mutual friend tells a cautionary tale about leading change by drawing a comparison to competing in a swim meet. As a father of three competitive swimmers, he explains that seasoned parents can tell when a swimmer compromises her chances of winning. Each swimmer must learn to stay focused on swimming her own race and not give in to the temptation of comparing her progress with the progress of the other swimmers. If a swimmer uses her time to glance at the other competitors during the race, a gasp will rise from the crowd: “Oh no, she looked!” Swimmers lose valuable energy and momentum when they break form to look beside them or behind them.

Your school is unique. Use the mind tip of champion swimmers: *Swim your best by staying focused on swimming your best in your own lane.*

The second point to remember is encapsulated in the saying “You eat an elephant one bite at a time.” Taking formative assessment schoolwide may seem overwhelming at first. The process takes time to learn and implement with fidelity and quality. Formative assessment is a complex change, and complex changes do not happen overnight. Change requires trust, and change requires risk. Change takes consistency, understanding, and compassion. Each day is another opportunity to learn more, do better, and collect evidence of success.

Remember that formative assessment is a complex process. It is not a strategy or a technique, and doing it well means implementing the process elements together, with consistency and quality. To do this, teachers learn new ways to think by *unlearning* what they believed to be true about how students learn and how quality teaching supports that learning. You cannot implement the formative assessment process in a day, but you can begin each day with the intention to keep moving forward. Lasting change takes time and commitment. You must be in this for the long haul.

Third, the research is clear: formative assessment increases student achievement. So just do it! Asking teachers to buy in is not the way to go. If just a few teachers in the building put formative assessment into practice, then what about the students in the classrooms of teachers who do not? Should they achieve less? Would we ask medical professionals to choose whether or not they want to share lifesaving practices with their patients? The proposition sounds ridiculous because it is ridiculous. Expect and demand full participation from the outset and stick with it. This book can help you suggest, support, and encourage as your school moves forward with this important learning process.

Finally, remember to recognize and celebrate progress. Knowing the benefits of formative assessment for students and their teachers makes it difficult to be patient and accept small victories. Sometimes it is easy to misinterpret slow progress or incremental change as resistance. Look for evidence of formative assessment and celebrate it everywhere that you see it—each small step and daily triumph. Mutual encouragement and shared pride can go a long way.

What Are Specific Strategies That Can Help School Leaders Take Formative Assessment Schoolwide?

In Chapters 1 through 7 we suggested ways to use the elements of the formative assessment process to guide and encourage classroom teachers to put formative assessment to work in their individual classrooms. What follows are strategies that focus on beginning and sustaining school-level discussions. These strategies will promote goal-directed action plans for taking formative assessment schoolwide.

What we suggest focuses squarely on the role that teacher beliefs play in your school—individually and collectively. As we explained in Chapter 1, it is

critical to quickly inoculate against the all too common misconception regarding formative assessment: *I am already doing this*. Remember, you are not trying to encourage teachers to “do” formative assessment; rather, you are asking teachers to collectively embrace an important conceptual change.

We begin by describing how to engage teachers individually and then collectively in taking the formative assessment pulse of their classrooms, and then we explain how to share information to set collective goals for the school.

Beginning with Sharing Learning Targets and Criteria for Success

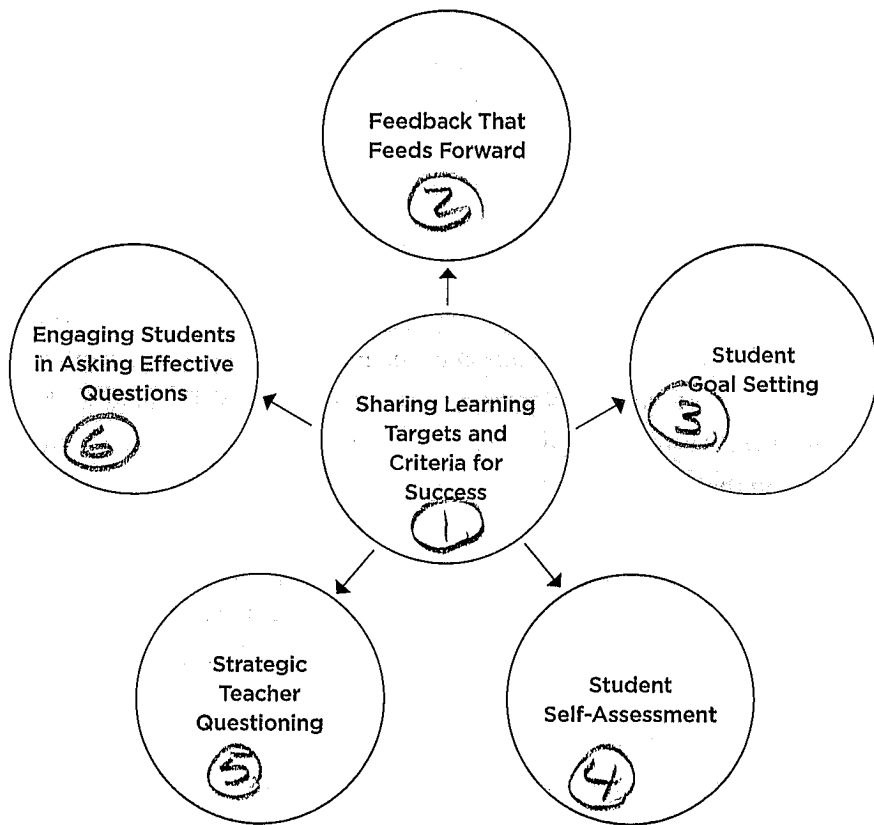
The elements of the formative assessment process must work together with quality, consistency, and fidelity to have a positive effect on student achievement and motivation to learn. And although it is possible to take formative assessment schoolwide by beginning with any one of the elements, our continued work with administrators and schools convinces us that Shared Learning Targets and the Criteria for Success is the hub—the central element of the process (see Figure 8.1). And because of that, we suggest it as the first element to introduce and the element on which to focus.

This approach makes sense if you consider the three guiding questions of the formative assessment process: *Where am I going? Where am I now? What strategy or strategies can help me get to where I need to go?* The learning target is key. Without a clear understanding of where we are headed, the effects of the other elements decrease. For example, for feedback to truly feed forward it must be tightly tied to the learning targets. Even descriptive and timely feedback that suggests a learning strategy will have little effect if a shared learning target does not anchor that feedback. The same goes for student self-assessment; the learning target focuses the student’s estimation of the gap between where the student is and where the student needs to be. In fact, understanding the learning target and using it as a North Star help students plot their course and monitor their progress. Students cannot set effective goals without knowing where they are headed. We can teach them how to ask questions, but unless they see inquiry as a way to make progress toward the learning target, their questions will do little to increase their understanding, confidence, and competence.

Just as important, shared learning targets drive instructional planning. The most innovative lesson plan will fall short if it does not intentionally help students

FIGURE 8.1

**Shared Learning Targets and the Criteria for Success:
The Hub of the Formative Assessment Process**



come to know and understand the important concepts and skills that make up the learning target. In the same vein, teacher questions are not strategic if those questions do not focus student attention on critical aspects of the concepts and skills essential to mastery of the learning target.

Finally, shared learning targets are imperative for educational leaders who intend to take formative assessment schoolwide. Teachers need to know where they are going. They need the time to examine those shared targets so that they

can assess the gap between where they are and where they need to be in order to create strategies for getting there.

For these reasons and many more, shared learning targets that are clear, specific, and tied to exemplars of excellence increase the probability for success for educators and their students. The old adage holds true: if you do not know where you are headed, any road will take you there. A unified, strategic plan for taking formative assessment schoolwide begins with and is sustained by clearly communicated targets and criteria for success.

Taking the Formative Assessment Pulse of the Classroom

Humans often approach a new process like formative assessment with a delusion of familiarity. And so as we have said before, you can expect teachers, being all too human, to assume that they are already implementing formative assessment. In our work with teachers who are grappling with the formative assessment process, we often hear statements like this: “We already do this; we just call it something else.”

Without a clear understanding of what it takes to implement all of the elements of the formative assessment process in the day-to-day and minute-by-minute work of the classroom, it is common for teachers to assume that they are already “doing” formative assessment at the highest levels of quality and consistency. That is why we suggest systematic and intentional inquiry into their classroom assessment practices as a good place to begin and as an honest reality check.

To help teachers assess their current practices, help them take the Formative Assessment Pulse of their classroom. Encourage them to reflect on three actual assessment experiences in their individual classrooms, on three separate days, using a format like the one in Figure 8.2. Encourage teachers to be as honest as possible as they document their assessment practices.

From the outset, work hard to establish an atmosphere of trust and sharing as you explain what you are asking teachers to do by asking them to take the Formative Assessment Pulse of their classrooms. Make sure to convey that teachers are gathering this evidence about their assessment practices to inform their own professional growth and focus their reflection. Remember that revealing what happens in one’s classrooms can constitute a risk for many teachers and make some teachers very uncomfortable. Explain that your goal is not to judge

FIGURE 8.2
Checklist for Taking a Formative Assessment Pulse

Formative Assessment Pulse Point (1, 2, 3)

Date _____

Description of the Assessment (When did it take place, what was the format, timing, time limit, etc.):			
Skills/Content That You Assessed:			
Type of Assessment	Uses of the Assessment (Check All That Apply)		My Purpose for the Assessment
<input type="checkbox"/> Written <input type="checkbox"/> Oral <input type="checkbox"/> Private conference <input type="checkbox"/> Project <input type="checkbox"/> Portfolio <input type="checkbox"/> Essay <input type="checkbox"/> Cooperative activity <input type="checkbox"/> Presentation/performance <input type="checkbox"/> Other _____	Formative (for Learning) <input type="checkbox"/> My students and I entered into the assessment with the intention to learn more about where we are, where we are headed, and how we are going to get there. <input type="checkbox"/> My students and I used it to monitor excellence during the process of learning. <input type="checkbox"/> My students and I used it for goal setting.	Summative (of Learning) <input type="checkbox"/> I used it to evaluate overall student performance at the end of a unit of study or lesson. <input type="checkbox"/> I used it to evaluate specific skills and/or knowledge at the end of a lesson or unit of study.	<input type="checkbox"/> To analyze and direct lesson planning (content/process) <input type="checkbox"/> To identify student needs <input type="checkbox"/> To compare with other evidence of learning <input type="checkbox"/> To contribute toward final grade <input type="checkbox"/> To report to student/parent <input type="checkbox"/> To help my students set goals
My Students' Role During the Assessment (Check All That Apply)			Assessment Source
<input type="checkbox"/> Were aware of the skills and/or content to be assessed. <input type="checkbox"/> Knew when they would be assessed. <input type="checkbox"/> Helped develop the assessment. <input type="checkbox"/> Identified specific strategies that they would use to succeed. <input type="checkbox"/> Were aware of the criteria for success beyond what constituted a passing score. <input type="checkbox"/> Had a rubric, checklist, or other way to monitor and regulate themselves during the assessment.			<input type="checkbox"/> Textbook <input type="checkbox"/> Teacher-made <input type="checkbox"/> Another source (book, Web site, etc.) <input type="checkbox"/> Teacher-modified or -refined (explain):

but to create a safe and open community of continuous inquiry and improvement to enhance student learning and achievement in your school. Describe how you will share information from the pulse points in professional conversations that are goal-directed, challenging, and yes, even unsettling, but necessary in order to work together to improve teaching and learning. Once teachers gather their three assessment pulse points, help them reflect on what the evidence shows about assessment practices in their classrooms and across the school.

Reflecting on the Three Assessment Pulse Points

Critical reflection that is honest, systematic, and intentional is vital for taking formative assessment schoolwide. Omit it at your own peril. Keep in mind that lasting change happens at a belief-altering level or not at all (Moss, 2002; Schreiber et al., 2007). Reflecting on the pulse points promotes cognitive dissonance by asking teachers to compare their actual assessment practices with highly effective formative assessment practices. This action will bring everyday assessment realities into sharp relief. The questions and prompts we suggest act as lenses that focus teacher reflection on specific criteria of high-quality formative assessment. Asking teachers to simply reflect on or assess what they do is not the kind of reflection that initiates change. General or shallow reflection does not produce crucial insights that illuminate the gap between what teachers actually do and what they need to do to gain skill and expertise in the formative assessment process.

Encourage teachers to focus their inquiry into their classroom assessment practices through the combined lenses of their three assessment pulse points. Then walk them through two phases of inquiry. Phase 1 asks teachers to recognize patterns in assessment practice, note specific areas of strength, and identify areas for growth. Phase 2 moves them from analyzing their practices to systematically and intentionally reflecting on the effect of their assessment patterns; it helps them to individually and collectively set goals and create action plans.

To begin, introduce teachers to the purpose and the questions that frame Phase 1 inquiry (see Figure 8.3). Notice that the first set of questions in Phase 1 deals with the assessment practices teachers used. Do their practices yield strong evidence of learning? If not, what are confounding variables or areas of assessment bias linked to their assessment practices? The second set of questions in Phase 1 prompts teachers to think in goal-directed ways about their formative assessment

expertise. Once again, draw on the guiding questions of the formative assessment process to explain that Phase 1 inquiry will help teachers think deeply about their practices to gauge formative assessment in their classroom: *Where am I? Where am I going? What strategy or strategies can help me get to where I need to go?*

Phase 2 inquiry takes teacher reflection to a much deeper, belief-altering level. Teachers are confronted with strategic “action questions” (see Figure 8.4). Each action question is paired with an analytical rubric—a continuum—that asks teachers to compare their present level of practice with the specific criteria characterizing high-quality formative assessment.

As we suggest in our discussion of self-assessment in Chapter 5, make sure teachers have ample time to discuss the rubrics and actively process the criteria. This will help teachers have the criteria “in mind” so that the review of their work will be “mindful,” specific, and focused on the relevant characteristics of high-quality formative assessment.

Use the action questions and formative assessment continuums to help teachers plot where they are, set goals, and identify strategies for increasing their professional expertise about the formative assessment process.

Collaborative Sharing and Action Planning

Once each teacher has created individual action steps, ask the teachers to share their action steps with each other. Sharing goals is an integral part of the professional accountability conversation that you want to begin and maintain. At first the sharing may be very straightforward and tenuous. As teachers come to believe that they are in this together, that this is not a choice but a collective endeavor, and that it is safe to share strengths and needs, the conversations will grow deeper and more productive.

Feel free to create your own strategic action questions, continuums of criteria, and prompts for action steps that reflect the unique characteristics of your school. Teachers can work together to create self-assessment rubrics for themselves to use as they continue to ramp up their expertise with formative assessment.

Use collaborative inquiry, reflection, self-assessment, and goal setting to embed and sustain formative assessment as a constant and continuous learning process rather than as isolated techniques or a one-time event. You can cultivate increased

FIGURE 8.3
Reflection Phase 1

Inquiry into My Assessment Design

Considering the actual practices documented in each assessment pulse point, . . .

- Did I truly assess the specific content or skill I intended?
- Did my students need content or skills other than those specified for the assessment in order to succeed?
- Did the assessment measure that content or those skills more than the content or skills that I intended to gauge?
- Did the assessment that I used in each instance fulfill the assessment purpose? Why or why not?

Inquiry into My Assessment Patterns

Considering the actual practices documented in the three assessment pulse points, I must conclude that I usually use classroom assessments to . . .

- Guide student learning.
- Assess the current status of each student's progress on specific skills/content.
- Plan and direct further instruction.
- Uncover gaps in my understanding and practice to guide my professional learning needs.
- Make decisions about the effectiveness of my teaching.
- Help my students with self-assessment and goal setting.
- Collect strong evidence of student learning.

competence in formative assessment by engaging teachers in professional conversations about learning and achievement.

A Final Thought

We purposely focused this book on six elements of the formative assessment process that work together to help students intentionally harness the workings of their own minds to increase their achievement and generate motivation to learn. We cannot state strongly enough that the primary goal of formative assessment

FIGURE 8.4
Reflection Phase 2

Action Question 1: Are my formative assessment efforts research-driven?

BEGINNING	PROGRESSING	EXEMPLARY
I am beginning to review research on the effect of formative assessment on teacher quality, student achievement, and motivation to learn.	I have a basic familiarity with research on the effect of formative assessment on teacher quality, student achievement, and motivation to learn.	I am very familiar with the research on the effect of formative assessment on teacher quality, student achievement, and motivation to learn. The intentional integration of this research is evident in my daily classroom practices.

I will take these action steps to increase my familiarity with the research on formative assessment:

Action Question 2: Do I intentionally collect and analyze information about my teaching and its effect on my students' learning?

BEGINNING	PROGRESSING	EXEMPLARY
I am eager to begin collecting evidence on the ways that my teaching affects student learning in my classroom.	Some of my lessons demonstrate my efforts to use formative assessment to refine and revise my teaching in ways that have a proven positive effect on student learning in my classroom.	I consistently use formative assessment to collect strong evidence of student learning and to raise the quality of my own teaching. I can document exactly which instructional practices have had positive effects on student learning in my classroom.

I will take these action steps to monitor the effect of my teaching on my students' learning and to raise the quality of my instruction:

FIGURE 8.4
Reflection Phase 2 (cont.)

Action Question 3: Do my students have opportunities in my classroom to assess and regulate their own learning?

BEGINNING

My students are not aware that they can assess and regulate their own learning. I will take steps to raise their self-assessment awareness and skill.

PROGRESSING

My students have basic self-assessment knowledge and skill. They usually have a general idea of what they must do more of or less of, or what they should do next to be successful. I am not consistent in making self-assessment an integral part of each lesson.

EXEMPLARY

My students and I are partners in learning. We consistently share information about learning goals and success criteria. My students are skilled self-assessors and confident self-regulated learners.

I will take these action steps to share more information with my students about where they are, where they need to go, and what they should do to get there:

Action Question 4: Do I use the formative assessment process as I am teaching to guide what I do?

BEGINNING

I collect information on student learning at the end of a lesson, not while I am teaching. I use evidence of student learning to improve how I will teach the lesson to the next group of students.

PROGRESSING

I am sometimes able to guide my teaching based on information that I am gathering. I always use what I know about my students' learning to reteach concepts until they reach mastery.

EXEMPLARY

I know exactly where my students and I are headed and the criteria for success. I constantly gauge student learning to monitor and adjust my teaching as I am working with my students.

I will take these action steps to gauge student understanding while I am teaching:

FIGURE 8.4
Reflection Phase 2 (cont.)

Action Question 5: Do I draw on formative assessment information to guide my conversations with parents, other teachers, and administrators about student learning and achievement in my classroom?		
BEGINNING	PROGRESSING	EXEMPLARY
I rely mostly on assessment of learning, and the information that I collect exists as grades and scores. What I collect does little to help me describe the learning that is and is not taking place in a way that is helpful to others.	I use the formative assessment process to gather information to share with others about student learning in my classroom. This evidence provides a rich description of where my students are in relation to my learning goals.	I consistently collect precise, timely, and descriptive evidence from the formative assessment process that guides my conversations with others regarding exactly what my students know and are able to do as they make progress toward my clearly defined learning targets.
I will take these action steps to move beyond using grades and scores to talk with others about student learning in my classroom:		

is to improve student learning. Although the benefits for professional growth are significant, that professional growth must increase student achievement. And though we shared practical strategies for teachers and school leaders throughout the book, we caution again that implementing the strategies as disjointed techniques will not produce high-quality formative learning experiences that have a positive effect on student achievement. Optimal learning environments flourish in schools where formative assessment is not just what educators “do” but is an indicator of what educators believe in and value.


We sincerely hope this book encourages school leaders to consider that learning—and, most crucially, learning how to learn—is the key to increased achievement for *all* students. So in a very real way, we wrote this book to support

school leaders who have the courage and the commitment to move from viewing themselves as instructional leaders to seeing themselves as the leading learners in their schools.

We firmly believe what Theodore Roosevelt proposed years ago: “Far and away the best prize that life offers is the chance to work hard at work worth doing.” Leading schools is hard work—we don’t need to tell you that. But, as we have witnessed in our own teaching and in schools where we are honored to work beside so many dedicated professionals, teaching students how to learn, instead of merely what to learn, is valuable work that is well worth doing.



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